

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

REMARKS

Claims 1-60 are pending in the application. No claims have been amended, canceled, withdrawn, or added. Applicant respectfully requests reconsideration and allowance of the pending claims in the subject application.

In the previous Action, the Office rejected originally rejected claims 1-60 in view of a primary reference, U.S. Patent No. 6,674,372 to Ouyang in combination with multiple secondary references. Applicant's response was apparently persuasive as the Office has withdrawn the rejection of the claims in view of these previously cited combinations of references. However, the Office has now raised new grounds for rejecting the claims, which are fully addressed below.

35 U.S.C. § 103 Rejections

Claims 1, 5, 6, 9, 10, 15-17, 19-21, 23, 26, 29, 32, 36, 41, 42, 45-52, 55, 56, 59, and 60 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,674,372 to Ouyang (hereinafter, "Ouyang") in view of U.S. Patent No. 6,009,444 to Chen (hereinafter, "Chen"). Applicant respectfully traverses the rejection.

Claim 1 defines a mobile device, comprising:

a keypad of number keys, the number keys having associated letters;

a language system to receive an input string entered via the keypad that is representative of one or more phonetic characters and generate likely language characters based on the input string;

a display to present the likely language characters for user selection; and

the language system being configured to facilitate input of the input string and selection of a language character without switching modes between input and selection.

As described in one exemplary implementation in the subject application, Applicant's claimed mobile device has a keypad with numbers, where the number keys have associated letters. Fig. 1 of the subject application is reproduced below.

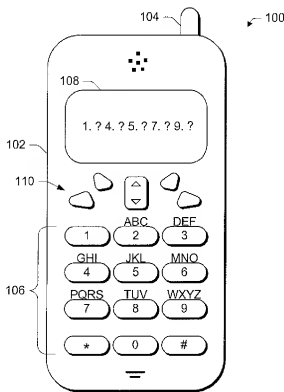


Fig. 1

The mobile device constructs a phonetic character (e.g., Pinyin) through input of a string of letters by pressing the corresponding lettered keys of the keypad. For example, to input the phonetic Pinyin text "mi" or "ni", the user would press 6 to input "m" or "n" and then 4 to yield "mi" or "ni". With each input, the mobile phone presents possible language characters (e.g., Hanzi). The

1 available choices are indexed by specifically chosen keys that have associated
2 letters of the alphabet that do not follow the phonetic characters already entered.
3 Continuing the above example, after the user enters "64", keys 1, 4, 5, 7, and 9
4 are chosen as selection keys because the letters associated with digits 4 (GHI), 5
5 (JKL), and 7 (PQRS) (note that digits 1 and 9 do not have any associated letters)
6 would not follow a Pinyin string of "mi" or "ni". The possible language characters
7 (e.g., Chinese Hanzi characters) are thus assigned to the selection keys 1, 4, 5, 7,
8 and 9. If the user sees a word that he/she wants to input, the user can directly
9 press any one of the keys 1, 4, 5, 7, and 9 for immediate selection of the
10 corresponding language character.

11 The remaining keys 2, 3, 6, and 8 continue being input keys because they
12 correspond to phonetic characters that still might be entered. For example,
13 following entry of "mi" or "ni" by pressing keys 6 and 4, the user may be
14 intending to enter the Pinyin text "min" or "nin". Thus, pressing the key 6 again
15 will form a three digit input of 6, 4, 6 for further input of phonetic text to yield
16 "min" or "nin", rather than selection of a converted character.

17 Accordingly, depending upon the user's input, the device dynamically
18 adjusts which keys are used to index possible language characters and which keys
19 are used to receive further phonetic text, thereby allowing differentiation between
20 the user's input of an additional phonetic text and the user's confirmation of an
21 intended converted language character. In this manner, the user need not switch
22 modes between input and selection, as they are seamlessly integrated.

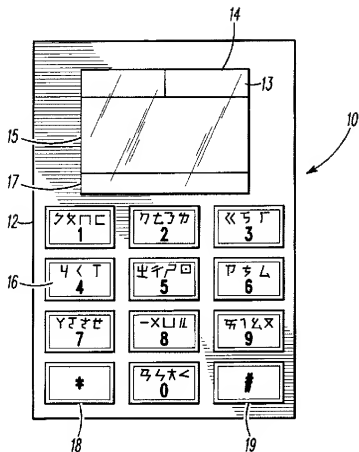
23 The combination of Ouyang and Chen fails to teach or suggest the mobile
24 device of claim 1. The primary reference, Ouyang, describes a device, such as a
25 cellphone, with a numeric keypad customized for entry of Chinese text. Instead of

having letters associated with the numbered keys, this customized keypad assigns specific phonetic symbols and tone symbols to the numbered keys. (*Ouyang*, Fig. 1 and col. 6, line 36 through col. 7, line 9). The user presses a key to input the corresponding phonetic symbol or tone signal. Fig. 2 of *Ouyang* is reproduced below.

1 ㄅ ㄆ ㄇ	2 ㄒ ㄓ ㄔ	3 ㄕ ㄖ ㄗ
4 ㄘ ㄙ ㄚ	5 ㄛ ㄜ ㄝ	6 ㄞ ㄟ ㄠ
7 ㄡ ㄣ ㄤ	8 ㄨ ㄩ FIRST TONE	9 ㄩ SECOND TONE
* ㄟ ㄠ	0 ㄨ ㄩ THIRD TONE	# ㄨ ㄩ FOURTH TONE LIGHT TONE

Fig 2 of the Ouyang Reference

The secondary reference, *Chen*, describes a computer system for inputting phonetic Chinese (Zhuyin) using a numeric keypad. Like *Ouyang*, instead of having letters associated with the numbered keys, *Chen*'s customized keypad assigns specific phonetic symbols to the numbered keys. (*Chen*, Fig. 1 and col. 2, lines 42-49). Fig. 1 of *Chen* is reproduced below.



The user presses a first key to input the corresponding phonetic symbol from a first set of keys (e.g., keys 1-6), and presses a second key from a second set of keys (e.g., keys 7-0) that is different than the first set of keys to input a second phonetic symbol. (*Chen*, col. 2, lines 50-67).

The cited combination does not teach or suggest a mobile device having “a keypad of number keys, the number keys having associated letters” as required by claim 1. Ouyang describes a keypad with number keys, but the number keys do not have associated letters; rather, the number keys are assigned corresponding phonetic and tone symbols. Chen describes a keypad with number keys, but the number keys do not have associated letters; rather, the number keys are assigned corresponding phonetic symbols.

1 For this reason alone, claim 1 is patentable over the combination of Ouyang
2 and Chen.

3 Secondly, the cited combination does not teach or suggest a mobile device
4 with a “language system” that is “configured to facilitate input of the input string
5 and selection of a language character without switching modes between input and
6 selection”, as required by claim 1. The Office acknowledges that Ouyang does not
7 teach this feature. (*Office Action of 10/13/05 (“Action”), section 1*). The Office
8 relies on Chen as teaching this aspect, and particularly points to Fig. 1 and
9 accompanying text beginning at column 2, lines 10-35, lines 59-67, and col. 3,
10 lines 33-46. Applicant respectfully disagrees.

11 According to Chen, “FIG. 1 shows the mapping of 37 Chinese phonetic
12 symbols to 10 telephone digit keys. The first set of symbols comprises 21
13 phonetic symbols. These are displayed on keys 1-6 of keypad 16. The second set
14 of symbols comprises 16 phonetic symbols. These are displayed on keys 7-0 of
15 keypad 16. The lower left hand key 18 has the symbols “*” (referred to as “star”).
16 The lower right hand key 19 has the symbols “#” (referred to as “pound”).”
17 (*Chen*, col. 2, lines 42-47; see also col. 2, lines 10-42). Chen does not use these
18 keys to “facilitate input of the input string and selection of a language character
19 without switching modes between input and selection”, as claim 1 recites. Instead,
20 Chen requires the user to switch out of a phonetic symbol input mode before the
21 user is allowed to select a corresponding language character.

22 Specifically, the system of Chen allows a user to press a first key to input
23 the corresponding phonetic symbol from a first set of keys (e.g., keys 1-6), and
24 press a second key from a second set of keys (e.g., keys 7-0) that is different than
25 the first set of keys to input a second phonetic symbol. (*Chen*, col. 2, lines 50-67,

1 and col. 3, lines 1-37). This portion of Chen expressly teaches that when the
2 second key is pressed, the phonetic symbol corresponding to the first set of keys is
3 “temporarily fixed in the window 13 and causes the next candidate symbol
4 [corresponding to the second set of keys] to be displayed in the window13”
5 (emphasis added). Then, Chen at col. 3, lines 38-46, expressly teaches that only
6 after the user finally selects the input phonetic symbols (e.g., the “temporarily
7 fixed” and “next candidate” symbols) by pressing the “#” key, will the user be
8 allowed to select a corresponding language character. Clearly, this means that
9 Chen requires the user to switch out of a phonetic symbol input mode before the
10 user is allowed to select a corresponding language character.

11 The cited combination does not teach or suggest a mobile device with a
12 “language system” that is “configured to facilitate input of the input string and
13 selection of a language character without switching modes between input and
14 selection” as required by claim 1. The Office acknowledges that Ouyang does not
15 teach this feature. Modifying Ouyang with Chen does not cure this deficiency.
16 Chen teaches that a user is required to switch out of a phonetic symbol input mode
17 before the user is allowed to select a corresponding language character. Requiring
18 the user to finally select the input phonetic symbols before allowing the user to
19 select from a set of corresponding language characters does not teach or suggest
20 “the language system being configured to facilitate input of the input string and
21 selection of a language character without switching modes between input and
22 selection”, as claim 1 requires. For this additional reason, claim 1 is patentable
23 over Ouyang and Chen.
24
25

1 For the above reasons, claim 1 is allowable over the combination of
2 Ouyang and Chen. Applicant respectfully requests that the §103 rejection be
3 withdrawn.

4 **Dependent claims 5, 6, 9, 10, 15, and 16** depend from claim 1 and are
5 allowable by virtue of this dependency. Accordingly, withdrawal of the 35 USC
6 §103(a) rejection of claims 5, 6, 9, 10, 15, and 16 is respectfully requested.

7 **Independent claim 17** defines a mobile device comprising “a keypad of
8 number keys, the number keys having associated letters of an alphabet” and “a
9 direct key-based search engine that generates possible language characters that are
10 not part of the alphabet based on a key sequence entered on the keypad”.

11 The cited combination does not teach or suggest the mobile device of claim
12 17. Neither reference teaches a “keypad of number keys” where the number keys
13 have “associated letters of an alphabet”. Ouyang shows a keypad, but not one
14 with numbered keys with associated letters of an alphabet. Instead, Ouyang
15 merely shows number keys with associated phonetic symbols of the Chinese
16 language. Chen also fails to teach this aspect.

17 Additionally, neither reference teaches the claimed “direct key-based search
18 engine”. The Office admits that Ouyang does not teach this aspect (*Office Action*
19 *of 2/9/05, page 4*) and fails to show that Chen does. More particularly, after
20 indicating that the primary reference does not teach this claimed feature, the
21 present Action fails to cite any portion of Chen which teaches this admitted
22 missing feature. For this reason alone, the Action has failed to present a prima
23 facie case of obviousness with respect to claim 17.

24 Preliminarily, Chen merely teaches that after a user has finished inputting
25 phonetic symbols into the system of Chen, the user exits the input mode by

1 pressing the “#” key, responsive to which the system “looks up the desired
2 character in dictionary 31” (*Chen*, column 3, lines 38-46). Applicant respectfully
3 submits that a keypad displaying phonetic symbols for user selection to locate a
4 corresponding language character does not teach or suggest “a direct key-based
5 search engine that generates possible language characters that are not part of the
6 alphabet based on a key sequence entered on the keypad”, as claim 17 requires.
7 Thus, the cited combination fails to teach or suggest each and every element of
8 claim 17.

9 Accordingly, for each of the above reasons, withdrawal of the 35 USC
10 §103(a) rejection to claim 17 is respectfully requested.

11 **Dependent claims 19-20** depend from claim 17 and are allowable by virtue
12 of this dependency. Accordingly, withdrawal of the 35 USC §103(a) rejection of
13 claims 19-20 is respectfully requested. Moreover, these claims recite features that,
14 when taken together with those of claim 17, define mobile devices not taught or
15 suggested by Ouyang and Chen.

16 **Independent claim 21** defines a mobile device, comprising:

17 a keypad of number keys, the number keys having associated
18 letters of an alphabet;

19 an association module that associates a key sequence with
20 language characters that are not part of the alphabet; and

21 a display to present the possible language characters as the user
22 depresses individual keys based on the key sequence.

23 Ouyang and Chen fail to teach this mobile device. For the reasons given
24 above with respect to claims 1 and 17, the cited combination fails to teach or
25

1 suggest the claimed “keypad of number keys” where the number keys have
2 “associated letters of an alphabet.” For this reason alone, the cited combination
3 fails to teach each and every element of claim 21.

4 Additionally, the cited combination further fails to teach “an association
5 module that associates a key sequence with language characters that are not part of
6 the alphabet” and “a display to present the possible language characters as the user
7 depresses individual keys based on the key sequence.” The Office admits that
8 Ouyang does not teach this aspect (*Office Action of 2/9/05, page 5*), and fails to
9 show where that Chen does. More particularly, after indicating that the primary
10 reference does not teach this claimed feature, the present Action fails to cite any
11 portion of Chen which teaches this admitted missing feature. For this reason
12 alone, the Action has failed to present a prima facie case of obviousness with
13 respect to claim 21.

14 For each of the above reasons, withdrawal of the 35 USC §103(a) rejection
15 of claim 21 is respectfully requested.

16 **Dependent claim 23** depends from claim 21 and is allowable by virtue of
17 this dependency.

18 **Dependent claim 26** depends from claim 24 and is allowable by virtue of
19 this dependency. Independent claim 24 defines a mobile device comprising:

20 a keypad of number keys, the number keys having associated
21 letters of an alphabet;

22 a language system to receive an input string of letters from the
23 alphabet entered via associated number keys of the keypad, where
24 the input string of letters is representative of one or more phonetic
25 characters, and to convert the phonetic characters to language
characters that are not part of the alphabet using a statistical

1 language model that utilizes at least one neighboring word in a
2 common sentence; and

3 a display to present the language characters for user selection.

4 The combination of Ouyang and Chen fails to teach the claimed mobile
5 device. The Office recognizes that Ouyang does not teach the language system.
6 (*Office Action of 2/9/05*, page 6), but again relies on Chen for this teaching.
7 Again, Applicant respectfully disagrees for the reasons already discussed with
8 respect to claim 1. For those reasons alone, claim 24 is allowable over the cited
9 combination of Ouyang and Chen. Since claim 26 depends from claim 24,
10 Applicant requests that the §103 rejection of claim 26 be withdrawn.

11 **Independent claim 29** defines a method comprising “receiving an input
12 string entered via a keypad”, “presenting likely language characters based on the
13 input string”, and “facilitating continued entry of the input string and selection of a
14 suitable language character without switching modes between input and
15 selection”. For the reasons given above with respect to claim 1, Ouyang and Chen
16 do not teach or suggest this method.

17 Applicant respectfully requests allowance of claim 29.

18 **Dependent claims 32 and 36** depend from claim 29 and are allowable by
19 virtue of this dependency.

20 **Dependent claims 41 and 42** depend from claim 37 and are allowable over
21 the cited combination by at least for reasons based on these respective
22 dependencies. For instance, independent claim 37 recites:

23 receiving an input string entered via a numeric-based keypad
24 where number keys in the keypad have associated letters in an
25 alphabet, the input string being representative of one or more
phonetic characters;

1 converting the input string of phonetic characters to possible
2 language characters that are not part of the alphabet; and

3 presenting the language characters using an index that associates
4 selection keys of the keypad with the language characters, the
5 selection keys being chosen based on whether the letters associated
6 with the selection keys are likely to follow the phonetic characters
7 already entered.

8 For the reasons given above with respect to claim 1, the cited combination
9 fails to teach or suggest this method. Claim 37 is therefore allowable over Ouyang
10 and Chen. As a result, claims 41 and 42, which depend from claim 37, are also
11 allowable over the cited combination. Withdrawal of the 35 USC §103 rejection
12 of claims 41 and 42 is respectfully requested.

13 **Independent claim 45** defines a method comprising “facilitating entry of
14 phonetic characters via discrete keys of a keypad” and “generating possible
15 language characters intended by the user based on a key sequence entered on the
16 keypad in lieu of converting the phonetic characters to the language characters.”

17 For the reasons given above with respect to claim 17, the cited combination
18 does not teach or suggest this method. The Office admits that Ouyang does not
19 teach the “generating” element. Chen is silent as to this feature as well. Chen
20 looks up language characters based on input phonetic symbols. Thus, Chen does
21 not teach, or effectively teaches away from, “generating possible language
22 characters intended by the user *based on a key sequence entered on the keypad in*
23 *lieu of converting the phonetic characters to the language characters.*”

24 For these reasons, claim 45 is allowable and the §103 rejection should be
25 withdrawn.

1 **Dependent claim 46** depends from claim 45 and is allowable by virtue of
2 this dependency.

3 **Independent claim 47** defines a method comprising:

4 receiving key entries entered via a numeric-based keypad where
5 number keys in the keypad have associated letters;

6 associating strings of key entries with language characters that
7 are different than the letters; and

8 presenting likely language characters intended by the user as the
9 user depresses individual keys.

10 For the reasons given above with respect to claims 1 and 17, the cited
11 combination fails to teach the method of claim 47, including “associating strings
12 of key entries with language characters that are different than the letters” and
13 “presenting likely language characters intended by the user as the user depresses
14 individual keys.” The §103 rejection should be withdrawn.

15 **Dependent claim 48** depends from claim 47 and is allowable by virtue of
16 this dependency.

17 **Independent claim 49** recites a method comprising:

18 receiving an input string of letters entered via a numeric-based
19 keypad where number keys in the keypad have associated letters, the
20 input string of letters being representative of one or more phonetic
21 characters;

22 converting the input string of letters that represent the phonetic
23 characters to possible language characters based upon a context of at
24 least one word in a sentence within which the input string is a part;
25 and

 presenting the possible language characters for selection by the
 user.

1
2 For the reasons given above with respect to claim 24, the cited combination
3 does not teach or suggest this method. The §103 rejection should be withdrawn.

4 **Dependent claim 50** depends from claim 49, and is allowable by virtue of
5 this dependency.

6 **Independent claim 51** recites:

7 receiving an input string entered via a keypad on a mobile
8 device;

9 sending the input string to a remote server;

10 generating likely language characters based on the input string at
11 the remote server; and

12 returning the likely language characters to the mobile device for
13 display.

14 The cited combination does not teach or suggest these claim features. Moreover,
15 the Action fails to particular point out where any of these features are taught or
16 suggested by the cited combination. Instead, the Action appears to reject the
17 recited features of claim 51 based on the same rationale used to reject the features
18 of claim 1. However, the features of claim 51 are not the same as the features of
19 claim 1. The Action has failed to present any line of reasoning as to why the cited
20 combination teaches these different features. As a result, the Action has failed to
21 present a prima facie case of obviousness with respect to claim 51.

22 For this reason alone, the 35 USC §103(a) rejection of claim 51 is improper
23 and should be withdrawn.

24 **Independent claim 52** defines a mobile device, comprising:

25 a keypad of number keys, the number keys having associated
letters of an alphabet;

1 a language system to receive an input string of letters from the
2 alphabet entered via associated number keys of the keypad, where
3 the input string of letters is representative of one or more phonetic
4 characters, and to generate likely language characters based on the
5 input string; and

6
7 a display to present the likely language characters for user
8 selection.

9
10 For the reasons given above with respect to claim 1, the Ouyang/Chen
11 combination fails to teach or suggest the claimed mobile device.

12 **Dependent claims 55-56 and 59-60** depend from claim 52 and are
13 allowable by virtue of this dependency.

14 Claims 2, 7, 18, 22, 24, 30, and 57 stand rejected under 35 USC §103(a) as
15 being unpatentable over Ouyang in view of Chen ("Chen '444") and further in
16 view of US patent number 6,073,146 to Chen ("Chen '146"). This rejection is
17 traversed.

18 As a preliminary matter, these claims stand rejected in view of the Ouyang
19 and Chen '444 and Chen '146 combination. However, this combination is
20 improper for a number of reasons. First, there is no motivation to combine these
21 references. Ouyang and Chen '444 are directed to devices with small numeric
22 keypads and limited screen area. Ouyang and Chen '444 are both concerned with
23 the challenges of entering Chinese characters with a limited number of keys, such
24 as a 12-key keypad. In contrast, Chen '146 describes a personal computer with a
25 full-size QWERTY keyboard and monitor. Chen's system does not even address
how characters are input, other than to say that input is accomplished using a
keyboard.

1 Input of Chinese characters using a 12-key keypad (such as those found on
2 cellphones and PDAs) poses entirely different problems and issues, with unique
3 considerations, in comparison to input of Chinese characters using a full-size
4 QWERTY keyboard. A skilled artisan attempting to address the issues of inputting
5 Chinese characters using a numeric keypad would not have been compelled or
6 motivated to consider the computer system of Chen '146 with its full-size
7 keyboard. Moreover, there is no motivation or suggestion in Chen '146
8 whatsoever to implement his technology in a mobile device with a small 12-key
9 keypad. The Office fails to describe how the references themselves suggest such a
10 combination.

11 Further, it is unclear whether the Ouyang or the Chen '444 devices could
12 even be modified to implement Chen's computer-implemented system. There is
13 no teaching in Chen '146 of implementing the system in mobile devices. There is
14 no indication that input design issues faced by device designers were even
15 contemplated by Chen '146. The Action fails to describe how this combination
16 would be made. Ouyang's and Chen's '444 small form factor device devices (e.g.
17 cellular phones, pagers, PDA, etc.) would have to be severely modified, much
18 beyond its teachings, in order to implement the system of Chen '146.

19 For these reasons, the combination relied on to reject claims 2, 7, 18, 22,
20 24, 30, and 57 is improper and should not have been made. Applicant respectfully
21 requests reconsideration of the cited combination, and withdrawal of all §103
22 rejections using this combination.

23 The flaws in the combination are even more apparent when attempting to
24 apply them to the claimed invention. Accordingly, the remainder of these remarks
25 addresses the rejections in a claim-by-claim analysis.

1
2 **Dependent claim 2** depends from claim 1. For the reasons already
3 discussed in the above, Ouyang in view of Chen '444 does not teach or suggest the
4 features of claim 1. Modifying this combination of Ouyang and Chen '444 with
5 the teachings of Chen '146 does not cure this deficiency. The Action in section 2
6 relies on Chen for the teaching of "wherein the phonetic characters are Chinese
7 Pinyin and the language characters are Chinese Hanzi", as claim 2 recites.
8 However, Chen '146 fails to teach the features of claim 1, which include:

9 a keypad of number keys, the number keys having associated
10 letters;

11 a language system to receive an input string entered via the
12 keypad that is representative of one or more phonetic characters and
generate likely language characters based on the input string;

13 a display to present the likely language characters for user
14 selection; and

15 the language system being configured to facilitate input of the
16 input string and selection of a language character without switching
modes between input and selection.

17
18 Unlike Ouyang and Chen '444, the secondary reference, Chen '146,
19 describes a computer system to imitate entered the phonetic text symbols with a
20 diacritic to indicate a tone of the symbol (Chen '146, Abstract). Chen's computer
21 system uses a full size QWERTY keyboard. (Chen '146, Fig. 1). The user
22 employs the full size keyboard 1030 to enter Pinyin text into the system, where it
23 is displayed on a first section 1021 of a split screen. The system converts the
24 Pinyin to Hanzi, and displays Hanzi characters in a second section 1024 of the
25

Secondly, the cited combination does not teach or suggest a mobile device with a “language system” that is “configured to facilitate input of the input string and selection of a language character without switching modes between input and selection” as required by claim 1. The Office acknowledges that Ouyang does not teach this feature. For the reasons already discussed above, Chen '444 does not teach this feature. Moreover, Chen '146 does not teach this feature. Instead, according to Chen, Fig. 4 shows a “process for keyboard input that produces a Pinyin word registration in the memory.” (*Chen '146*, col. 5, lines 31-33). The user enters Chinese or English text through the keyboard 1030, where Chinese syllables are followed by a diacritic and English syllables are not, but are delimited by spaces. (*Chen '146*, col. 10, lines 50-67). The entered Pinyin is displayed in a first section 1021 of the monitor (see Fig. 1). When the end of a syllable is reached, the system reads the diacritic. (*Chen '146* col. 11, lines 12-14). The system converts the Pinyin to Hanzi, and displays the Hanzi in the second section 1024 of the monitor. Unlike mobile devices with limited entry keys and limited screen area (as in claim 1), Chen '146 is not concerned with switching modes between input and selection because Chen's '146 system employs a large monitor with sufficient screen area to show both the input Pinyin (*Chen*, Fig. 1, Pinyin section 1021) and converted Hanzi (*Chen '146*, Fig. 1, Hanzi section 1024). Chen's system further includes a full size keyboard where the user need not worry about switching between input and selection as there are many keys for both purposes. Thus, Chen '146 does not suggest a “language system” that is “configured to facilitate input of the input string and selection of a language character without switching modes between input and selection” as required by claim 1.

1 For this additional reason, claim 1 is patentable over Ouyang and Chen '444
2 and Chen '146.

3 Finally, the Office argues that it would have been obvious to one of
4 ordinary skill to provide the teaching of Chen '146 into the system of Ouyang and
5 Chen '444 in order to speed up the language conversion process. Applicant
6 disagrees. A skilled artisan would not have combined these references, as there is
7 no motivation to combine Ouyang and Chen '444 with Chen '146 given that they
8 are entirely different systems. Ouyang and Chen '444 are directed to a devices
9 with a numeric keypad and the challenges of entering Chinese characters with a
10 limited number of keys. In contrast, Chen '146 describes a personal computer with
11 a full-size QWERTY keyboard and monitor. Input of Chinese characters using a
12 limited keypad (such as those found on cellphones and PDAs) poses entirely
13 different issues, with unique considerations, in comparison to input of Chinese
14 characters using a full-size QWERTY keyboard. A skilled artisan attempting to
15 address the issues of inputting Chinese characters using a numeric keypad would
16 not have been compelled or motivated to consider Chen's computer system with
17 full-size keyboard.

18 For the above reasons, claim 1 is allowable over the combination of
19 Ouyang and Chen '444 and Chen '146. Since claim 2 depends from claim 1, claim
20 2 is allowable over the cited combination. Applicant respectfully requests that the
21 §103 rejection of claim 2 be withdrawn.

22 **Dependent claims 7, 18, and 22** depend from respective ones of claims 1,
23 17, and 21. For the reasons already discussed above with respect to claim 2,
24 claims 7, 18, and 22 are allowable over the cited combination of references at least
25 for reasons based on their respective dependencies.

Independent claim 24 defines a mobile device comprising:

a keypad of number keys, the number keys having associated letters of an alphabet;

a language system to receive an input string of letters from the alphabet entered via associated number keys of the keypad, where the input string of letters is representative of one or more phonetic characters, and to convert the phonetic characters to language characters that are not part of the alphabet using a statistical language model that utilizes at least one neighboring word in a common sentence; and

a display to present the language characters for user selection.

The combination of Ouyang and Chen '444 and Chen '146 fails to teach the claimed mobile device. For the reasons already discussed above with respect to claim 1, Ouyang and Chen '444 fail to teach or suggest the features of claim 24. Additionally, the Office recognizes that Ouyang does not teach the language system, but again relies on Chen '146 for this teaching. Again, Applicant respectfully disagrees. First, Chen '146 fails to teach a "language system to receive an input string of letters from the alphabet entered via associated number keys of the keypad, where the input string of letters is representative of one or more phonetic characters" as required by claim 24. This has been addressed above in detail. Secondly, Chen '146 fails to teach "a language system . . . to convert the phonetic characters to language characters that are not part of the alphabet using a statistical language model that utilizes at least one neighboring word in a common sentence." Nowhere does Chen 146 describe a language system that converts phonetic characters to language characters "using a statistical language model that utilizes at least one neighboring word in a common sentence" as required by claim

1 24. Thus, the cited combination of references fails to teach or suggest all of the
2 features of claim 24.

3 For these reason alone, claim 24 is allowable over the cited combination of
4 Ouyang and Chen '444 and Chen '146. Accordingly, Applicant requests that the
5 §103 rejection be withdrawn.

6 **Dependent claim 30** depends from independent claim 27. Independent
7 claim 27 recites:

8 a resident language model residing on a mobile device to convert
9 phonetic characters input into the mobile device into language characters
10 using a first statistical language model; and

11 a nonresident language model residing on a server remote from the
12 mobile device, the nonresident language model being configured to convert
13 the phonetic characters into the language characters using a second
14 statistical language model.

15 The cited combination fails to teach or suggest the claimed system. First,
16 none of Ouyang, Chen '444 and Chen '146 teaches a “resident language model
17 residing on a mobile device to convert phonetic characters input into the mobile
18 device into language characters using a first statistical language model” (the
19 Action admits this with respect to Ouyang/Chen ‘444” in section 6 when
20 referencing the features of claim 14. As noted above, Ouyang does not employ a
21 statistical language model. Chen '444 merely indicates that input phonetic
22 symbols are used to look up desired character in a dictionary (Chen '444, lines 37-
23 41), and is completely silent with respect to any teaching or suggestion of a
24 “statistical language model”, as claim 27 recites. Chen '146 fails to provide any
25 teaching of a “mobile device to convert phonetic characters input into the mobile
device into language characters using a first statistical language model.” For this

1 reason alone, claim 27 is allowable. Of the cited combination of references. Since
2 claim 30 depends from claim 27, claim 30 is also allowable, at least for these
3 reasons, over the cited combination of references.

4 Moreover, none of the references, alone or in combination, teaches a
5 system with *both* a “resident language model residing on a mobile device” and “a
6 nonresident language model residing on a server remote from the mobile device”,
7 as claim 27 recites. Furthermore, the Action has failed to point to any teaching or
8 suggestion and provide any reasoning with respect to any one of the references
9 that are cited against claim 30, which depends from claim 27, to show where these
10 features of claim 27 are taught or suggested. Thus, the Action has clearly failed to
11 present a prima facie case of obviousness with respect to claim 30, which depends
12 from claim 27.

13 Accordingly, for each of the above reasons, withdrawal of the 35 USC
14 §103(a) rejection of claim 30 is respectfully requested.

15 **Dependent claim 57** depends from claim 52 and is allowable over the cited
16 combination of references at least by virtue of this dependency. Independent
17 claim 52 defines a mobile device, comprising:

18 a keypad of number keys, the number keys having associated
19 letters of an alphabet;

20 a language system to receive an input string of letters from the
21 alphabet entered via associated number keys of the keypad, where
22 the input string of letters is representative of one or more phonetic
23 characters, and to generate likely language characters based on the
24 input string; and

25 a display to present the likely language characters for user
selection.

1 For the reasons given above with respect to claim 2, the Ouyang/Chen
2 '444/Chen '146 combination fails to teach or suggest the claimed mobile device of
3 claim 52. Since claim 57 depends from claim 52, claim 57 is also allowable over
4 the cited combination.

5 Accordingly, withdrawal of the 35 USC §103(a) rejection of claim 57 is
6 respectfully requested.

7
8 Claims 3, 4, 31, 32, 37, 39, 40, 53, and 54 stand rejected under 35 USC
9 §103(a) as being unpatentable over Ouyang in view of Chen '444 and further in
10 view of US patent number 6,489,952 Griffin et al. ("Griffin"). This rejection is
11 traversed.

12 **Dependent claim 3** depends from claim 1. For the reasons already
13 discussed above, Ouyang in view of Chen '444 does not teach or suggest the
14 features of claim 1. Modifying Ouyang in view of Chen '444 with the teachings
15 of Griffin do not cure this deficiency of Ouyang in view of Chen '444.

16 Griffin teaches a hand-held electronic device with a keyboard, a
17 thumbwheel, and a display for thumb-based and/or keystroke data entry for
18 international character scrolling and auto-capitalization. (*Griffin*, Abstract). More
19 particularly, Griffin teaches that a user can press a key on a hand-held device and
20 use a thumb-wheel to produce inputs that allows the user to scroll through a list of
21 international characters associated with the pressed key. (*Griffin*, column 10, lines
22 5-47).

23 Claim 1 recites:

- 24 • "a keypad of number keys, the number keys having associated letters",
25

- 1 • “a language system to receive an input string entered via the keypad that is
2 representative of one or more phonetic characters and generate likely language
3 characters based on the input string”,
- 4 • “a display to present the likely language characters for user selection”, and
- 5 • “the language system being configured to facilitate input of the input string and
6 selection of a language character without switching modes between input and
7 selection.”

8

9 The cited combination does not teach or suggest these claimed features.

10 For example, the cited combination does not teach or suggest a mobile device with

11 a “language system” that is “configured to facilitate input of the input string and

12 selection of a language character without switching modes between input and

13 selection” as required by claim 1. The Office acknowledges that Ouyang does not

14 teach this feature. For the reasons already discussed, Chen ‘444 does not teach

15 this claimed feature, but instead teaches a user must exit a phonetic symbol input

16 mode by pressing a particular delimiter key (e.g., the “#” key) before a language

17 character can be selected for input phonetic symbols. Griffin teaches thumb-based

18 and/or keystroke data entry for international character scrolling and auto-

19 capitalization. Griffin is completely silent with respect to respect to input of any

20 “input string [...] representative of one or more phonetic characters”. As a result,

21 the cited combination of references may never provide a “language system” that is

22 “configured to facilitate input of the input string and selection of a language

23 character without switching modes between input and selection” as required by

24 claim 1. Since claim 3 depends from claim 1, claim 3 is also not obvious over the

25 cited combination.

1 Accordingly, withdrawal of the 35 USC §103(a) rejection of claim 3 is
2 respectfully requested.

3 **Dependent claim 4** depends from claim 1. For the reasons discussed
4 above with respect to claim 3, claim 4 is not obvious over the cited combination of
5 references at least for reasons based on its dependency from claim 1.

6 **Dependent claim 31** depends from claim 29. For the reasons already
7 discussed above, Ouyang in view of Chen '444 does not teach or suggest the
8 features of claim 29. More particularly, the Action admits that Ouyang does not
9 teach "facilitating continued entry of the input string and selection of a suitable
10 language character without switching modes between input and selection", as
11 claim 29 requires. Chen '444 requires a user to switch out of a phonetic symbol
12 input mode before a reference language character can be selected for input
13 phonetic symbols, as discussed above with respect to claim 1. Thus, Chen '444
14 does not cure the deficiency of Ouyang. Modifying this combination with Griffin
15 still fails to teach these claim features.

16 Griffin teaches thumb-based and/or keystroke data entry for international
17 character scrolling. at column 9, line 51, through column 10, line 47, Griffin teaches
18 that "the thumbwheel and at least one key on the keyboard may be utilized to
19 insert international characters into a user input field". To accomplish this, Griffin
20 teaches that "the user first presses and holds down a key with the desired
21 associated international characters while the thumbwheel is rolled. For each rolled
22 input from the thumbwheel, a different international character associated with the
23 depressed key is outputted on the display as a substitute for the previous character
24 displayed. [...] When the desired character is displayed, the user releases the
25 depressed key and the desired character remains on the display." Thus, the system

1 of Griffin requires a user to switch out of input mode (a keypress in combination
2 with thumbwheel input to scroll in display potential characters) to select a
3 displayed character ("the user releases the depressed key and the desired character
4 remains on the display"). As a result, Griffin does not teach "facilitating
5 continued entry of the input string and selection of a suitable language character
6 without switching modes between input and selection".

7 Accordingly, modifying Ouyang and Chen '444 with Griffin's system that
8 requires a user switch out of an input mode to select a character does not teach or
9 suggest "facilitating continued entry of the input string and selection of a suitable
10 language character without switching modes between input and selection", as
11 claim 29 requires. Since claim 32 depends from claim 29, claim 32 is also not
12 obvious over the cited combination.

13 Withdrawal of the 35 USC §103(a) rejection of claim 32 is respectfully
14 requested.

15 **Independent claim 37 recites:**

16 receiving an input string entered via a numeric-based keypad
17 where number keys in the keypad have associated letters in an
18 alphabet, the input string being representative of one or more
19 phonetic characters;

20 converting the input string of phonetic characters to possible
21 language characters that are not part of the alphabet; and

22 presenting the language characters using an index that associates
23 selection keys of the keypad with the language characters, the
24 selection keys being chosen based on whether the letters associated
25 with the selection keys are likely to follow the phonetic characters
already entered.

1 For the reasons given above with respect to claim 1, the combination of Ouyang in
2 view of Chen '444 fails to teach or suggest "presenting the language characters
3 using an index that associates selection keys of the keypad with the language
4 characters, the selection keys being chosen based on whether the letters associated
5 with the selection keys are likely to follow the phonetic characters already
6 entered", as claim 37 requires (i.e., this follows because Ouyang in view of Chen
7 '444 fails to teach "receiving an input string entered via a numeric-based keypad
8 where number keys in the keypad have associated letters in an alphabet, the input
9 string being representative of one or more phonetic characters"). Modifying this
10 combination with Griffin does not cure this deficiency.

11 Griffin teaches that international characters are associated with every key
12 on a keyboard. To display the international characters associated with a key, the
13 user depresses the key while rolling the thumbwheel. (Griffin, column 9, lines 51-
14 60). These displayed characters have not yet been selected. Griffin teaches that a
15 candidate international character is selected when "the user releases the depressed
16 key" (the "desired character remains on the display"). Thus, the selection key of
17 Griffin is chosen **based on whether the international character being selected**
18 **has been assigned to the key being pressed and subsequently released**, and not
19 "based on whether the letters associated with the selection keys are likely to
20 follow the phonetic characters already entered", as claim 37 requires. Thus,
21 modifying Ouyang and Chen '444 with the teachings of Griffin fails to teach each
22 and every element of claim 37.

23 Accordingly, withdrawal of the 35 USC §103(a) rejection of claim 37 is
24 respectfully requested.
25

1 **Dependent claims 39 and 40** are allowable over the cited combination at
2 least by virtue of their respective dependencies on claim 37.

3 **Dependent claims 53 and 54** depend from claim 52 and are allowable over
4 the cited combination at least for reasons based on these respective dependencies.
5 claim 52 recites “a language system to receive an input string of letters from the
6 alphabet entered via associated number keys of the keypad, where the input string
7 of letters is representative of one or more phonetic characters, and to generate
8 likely language characters based on the input string”. For the reasons already
9 discussed above, the Ouyang/Chen ‘444 combination fails to teach or suggest the
10 claimed mobile device. Modifying this combination with the teachings of Griffin
11 does not cure this deficiency.

12 Griffin at column 10, lines 5-24, teaches that responsive to a user pressing a
13 key, a keypad event is generated that provides descriptor information to identify
14 the key that was pressed and to indicate whether the thumbwheel is being rolled up
15 or down. This information is used to index up or down through an array
16 containing references to international characters associated with the pressed key.
17 Clearly, Griffin’s key press generated descriptor information that identifies the
18 pressed key and indicates which direction and how far to index into an array of
19 international characters associated with the pressed key does not teach or suggest
20 “a language system to receive an input string of letters” from the alphabet entered
21 via associated number keys of the keypad [...] to generate likely language
22 characters based on the input string”, as claim 52 requires.

23 In view of the above, modifying Ouyang and Chen ‘444 with the teachings
24 of Griffin does not cure the already discussed deficiencies of Ouyang/Chen ‘444
25 with respect to claim 52. Claims 53 and 54 are also allowable over the cited

1 combination at least for reasons based on their respective dependencies on claim
2 52.

3 Withdrawal of the 35 USC §103(a) rejection of claims 53 and 54 is
4 respectfully requested.

5
6 Claims 8, 28, and 58 stand rejected under 35 USC §103(a) as being
7 unpatentable over Ouyang in view of Chen '444 and further in view of US patent
8 number 6,292,772 to Kantrowitz. This rejection is traversed

9 **Dependent claim 8** depends from claim 1 and is allowable over the cited
10 combination at least for reasons of this dependency. For the reasons already
11 discussed, Ouyang in view of Chen '444 does not teach or suggest the features of
12 claim 1. Moreover, modifying this combination with the teachings of Kantrowitz
13 does not cure this deficiency.

14 The Action relies on Kantrowitz for the teaching of “wherein the language
15 system includes a character-based bigram language model and a word-based N-
16 gram language model, where $N \geq 2$ ”. Assuming arguendo that Kantrowitz does
17 teach that which the Action relies on Kantrowitz for, the cited portions of
18 Kantrowitz, and Kantrowitz as a whole does not cure the already discussed
19 deficiencies of Ouyang/Chen '444 with respect to claim 1. Kantrowitz merely
20 teaches a system for identifying the language of individual words and is
21 completely silent on the following features: “a keypad of number keys, the number
22 keys having associated letters”, “a language system to receive an input string
23 entered via the keypad that is representative of one or more phonetic characters
24 and generate likely language characters based on the input string”, “a display to
25 present the likely language characters for user selection”, and “the language

1 system being configured to facilitate input of the input string and selection of a
2 language character without switching modes between input and selection”, as
3 claim 1 requires. Thus, claim 8, which depends from claim 1, is not obvious over
4 the cited combination of references.

5 Withdrawal of the 35 USC §103(a) rejection of claim 8 is respectfully
6 requested.

7 **Dependent claim 28** depends from claim 27 and is not obvious over the
8 cited combination by virtue of this dependency. For the reasons already discussed,
9 Ouyang in view of Chen ‘444 does not teach or suggest the features of claim 27.
10 Moreover, modifying this combination with the teachings of Kantrowitz does not
11 cure this deficiency.

12 The Action relies on Kantrowitz for the teaching of “wherein the language
13 system includes a character-based bigram language model and a word-based N-
14 gram language model, where $N > 2$ ”. Assuming arguendo that Kantrowitz does
15 teach that which they Action relies on Kantrowitz for, the cited portions of
16 Kantrowitz, and Kantrowitz as a whole does not cure the already discussed
17 deficiencies of Ouyang/Chen ‘444 with respect to claim 27. Kantrowitz merely
18 teaches a system for identifying the language of individual words and is
19 completely silent on the following features: “a resident language model residing
20 on a mobile device to convert phonetic characters input into the mobile device into
21 language characters using a first statistical language model”, and “a nonresident
22 language model residing on a server remote from the mobile device, the
23 nonresident language model being configured to convert the phonetic characters
24 into the language characters using a second statistical language model”, as claim
25

1 27 requires. Thus, claim 28, which depends from claim 27, is not obvious over the
2 cited combination of references.

3 Withdrawal of the 35 USC §103(a) rejection of claim 28 is respectfully
4 requested.

5 **Dependent claim 58** depends from claim 52 and is not obvious over the
6 cited combination by virtue of this dependency. For the reasons already discussed,
7 Ouyang in view of Chen '444 does not teach or suggest the features of claim 52.
8 Moreover, modifying this combination with the teachings of Kantrowitz does not
9 cure this deficiency.

10 The Action relies on Kantrowitz for the teaching of "wherein the language
11 system includes a character-based bigram language model and a word-based N-
12 gram language model, where $N > 2$ ". Assuming arguendo that Kantrowitz does
13 teach that which they Action relies on Kantrowitz for, the cited portions of
14 Kantrowitz, and Kantrowitz as a whole does not cure the already discussed
15 deficiencies of Ouyang/Chen '444 with respect to claim 52. Kantrowitz merely
16 teaches a system for identifying the language of individual words and is
17 completely silent on the following features: "a keypad of number keys, the number
18 keys having associated letters of an alphabet", "a language system to receive an
19 input string of letters from the alphabet entered via associated number keys of the
20 keypad, where the input string of letters is representative of one or more phonetic
21 characters, and to generate likely language characters based on the input string",
22 and "a display to present the likely language characters for user selection", as
23 claim 52 requires. Thus, claim 58, which depends from claim 52, is not obvious
24 over the cited combination of references.
25

1 Withdrawal of the 35 USC §103(a) rejection of claim 58 is respectfully
2 requested.

3
4 Claims 11-13, 34, 35, 43, and 44 stand rejected under 35 USC §103(a) as
5 being unpatentable over Ouyang in view of Chen '444 and further a view of US
6 patent number 6,272,464 to Kiraz. This rejection is traversed.

7 **Dependent claims 11-13** depend from claim 1 and are allowable over the
8 cited combination at least for reasons based on these respective dependencies. For
9 the reasons already presented, claim 1 is not obvious over the Ouyang/Chen '444
10 combination. Modifying this combination with the teachings of Kiraz does not
11 cure this deficiency. Kiraz teaches a system to identify language origins of a
12 proper name given training data for various languages and bigrams (Abstract,
13 column 4, line 49 through column 5, line 15, column 6, line 61 through column 7,
14 line 10). Combining these teachings, and the teachings of Kiraz as a whole, with
15 Ouyang and Chen '444, still fails to teach or suggest the above recited features of
16 claim 1, from which claims 11-13 depend.

17 Withdrawal of the 35 USC §103(a) rejection of claims 11-13 is respectfully
18 requested.

19 **Dependent claims 34 and 35** depend from claim 29 and are allowable over
20 the cited combination at least for reasons based on these respective dependencies.
21 For the reasons already presented, claim 29 is not obvious over the Ouyang/Chen
22 '444 combination. Modifying this combination with the teachings of Kiraz does
23 not cure this deficiency. Kiraz teaches a system to identify language origins of a
24 proper name given training data for various languages and bigrams (Abstract,
25 column 4, line 49 through column 5, line 15, column 6, line 61 through column 7,

1 line 10). Combining these teachings, and the teachings of Kiraz as a whole, with
2 Ouyang and Chen '444, still fails to teach or suggest the above recited features of
3 claim 29, from which claims 34 and 35 depend.

4 Withdrawal of the 35 USC §103(a) rejection of claims 34 and 35 is
5 respectfully requested.

6 **Dependent claims 43 and 44** depend from claim 37 and are allowable over
7 the cited combination at least for reasons based on these respective dependencies.
8 For the reasons already presented, claim 37 is not obvious over the Ouyang/Chen
9 '444 combination. Modifying this combination with the teachings of Kiraz does
10 not cure this deficiency. Kiraz teaches a system to identify language origins of a
11 proper name given training data for various languages and bigrams (Abstract,
12 column 4, line 49 through column 5, line 15, column 6, line 61 through column 7,
13 line 10). Combining these teachings, and the teachings of Kiraz as a whole, with
14 Ouyang and Chen '444, still fails to teach or suggest the above recited features of
15 claim 37, from which claims 43 and 44 depend.

16 Withdrawal of the 35 USC §103(a) rejection of claims 43 and 44 is
17 respectfully requested.

18
19 Claims 14 and 27 stand rejected under 35 USC §103(a) as being
20 unpatentable over Ouyang in view of Chen '444 and further in view of US patent
21 # 5,838,972 to Matsuzuka. These rejections are traversed.

22 **Dependent claim 14** depends from claim 1 and is allowable over the cited
23 combination at least for reasons based on this respective dependency. For the
24 reasons already presented, claim 1 is not obvious over the Ouyang/Chen '444
25 combination. Modifying this combination with the teachings of Matsuzuka does

not cure this deficiency. Column 1, lines 25 through column 2, line 3, of Matsuzuka merely teaches that internationalized software programs may utilize separate remote servers to get inputs for complex languages such as Chinese because a large dictionary of words and a detailed knowledge of the languages is typically required to support text input mechanisms. Clearly, these teachings are completely silent with respect to any description of the above recited features of claim 1. Thus, combining Matsuzuka with Ouyang in view of Chen '444 does not teach or suggest the features of claim 1, upon which claim 14 depends.

For this reason alone, withdrawal of the 35 USC §103(a) rejection of claim 14 is requested.

Moreover, Matsuzuka's teaching of that a remote server can be used to facilitate text input mechanisms for complex languages clearly does not teach or suggest that the text input mechanism includes logic "to statistically derive the language characters using a second statistical language model", as claim 14 recites.

Accordingly, for each of the above reasons, withdrawal of the 35 USC §103(a) rejection of claim 14 is respectfully requested.

Independent claim 27 is allowable over the Ouyang/Chen '444 combination for the reasons already discussed above. Modifying this combination with the teachings of Matsuzuka does not cure this deficiency. Column 1, lines 25 through column 2, line 3, of Matsuzuka merely teaches that internationalized software programs may utilize separate remote servers to get inputs for complex languages such as Chinese because a large dictionary of words and a detailed knowledge of the languages is typically required to support text input mechanisms. Clearly, these teachings are completely silent with respect to any description of "a

1 nonresident language model residing on a server remote from the mobile device,
2 the nonresident language model being configured to convert the phonetic
3 characters into the language characters using a second statistical language model",
4 as claim 27 requires. Nowhere does Matsuzuka teach that the remote server text
5 input mechanism is configured to "convert the phonetic characters into the
6 language characters using a second statistical language model". Thus, modifying
7 Ouyang and Chen '444 with the teachings of Matsuzuka does not teach the
8 features of claim 27.

9 Withdrawal of the 35 USC §103(a) rejection of claim 27 is respectfully
10 requested.

11
12 **Conclusion**

13 Claims 1-60 are in condition for allowance. Applicant respectfully requests
14 reconsideration and prompt allowance of the subject application. If any issue
15 remains unresolved that would prevent allowance of this case, the Examiner is
16 requested to contact the undersigned attorney to resolve the issue.

17
18 Respectfully Submitted,

19 Date: 01/09/2006

20 By:

Brian G. Hart
21 Brian G. Hart
22 Lee & Hayes, PLLC
23 Reg. No. 44, 421
24 (509) 324-9256
25